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10/679,752	10/06/2003	Jeffrey H. Burns	DP-310264	2820
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DELPHI TECHNOLOGIES, INC.			EXAMINER	
M/C 480-410-202			CUTLER, ALBERT H	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/679,752

Applicant(s)

BURNS, JEFFREY H.

Examiner

Albert H. Cutler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is responsive to communication filed on September 18, 2007. Claims 1-5 and 8-10 are pending in the application and have been examined by the Examiner.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 18, 2007 has been entered.

### ***Response to Arguments***

3. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

4. Claim 8 is objected to because of the following informalities: Lack of clarity and precision.

Claim 8 recites, "the optical imaging element is electrically coupled to the integrated circuit by electrically conductive bumps". However, paragraph 0021 of the specification recites, "Additionally, face 26 of integrated circuit 16 also includes electrically conductive pads 28 **for electrically coupling optical imaging element 24 to circuit members 14.**" This is also shown in figures 1 and 2. Therefore, it appears that the optical imaging element is coupled to the electrical circuit, not the integrated circuit, via conductive bumps. Therefore, the Examiner will interpret claim 8 to read, "the optical imaging element is electrically coupled to the **electrical** circuit by electrically conductive bumps". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al.(US 2001/0050717).

Consider claim 1, Yamada et al. teach:

An optical sensor circuit assembly(figure 2), comprising:

an optically transmissive substrate(filter, 24), an electrical circuit("stepped wiring board", 21) on the optically transmissive substrate(24, see figure 2), the electrical

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circuit(21) including electrically conductive leads(See figure 5B, paragraphs 0060-0062.

The electrical circuit(21) has conductive leads(21a) which provide an electrical connection to a projecting electrode(27).);

an integrated circuit including an optical imaging element("image pick-up semiconductor", 4) and electrically, conductive pads(27) on a face of the integrated circuit(The integrated circuit is an "image pick-up semiconductor" with an image pickup region denoted by 22 of figure 2, and a peripheral portion containing conductive pads(27) on a face thereof and detailed further in figure 5B.); and

the optical imaging element(see "image pick-up semiconductor", 4) electrically coupled to the electrical circuit(21) on the said substrate(24) by an electrical connection between the electrically conductive pads(27) on the face of the integrated circuit(4) and the electrically conductive leads(21a) of the electrical circuit(21) on the substrate(24, paragraphs 0042-0043, 0060-0062).

Consider claim 8, and as applied to claim 1 above, Yamada et al. further teach that the optical imaging element(see "image pick-up semiconductor", 4) is electrically coupled to the **electrical** circuit(21) by electrically conductive bumps(32a) disposed between the leads(21a) and the pads(27, see figure 5B, paragraphs 0060-0062).

Consider claim 9, and as applied to claim 1 above, Yamada et al. further teach at least one optical element(lens, 2) positioned to direct electromagnetic radiation through

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said substrate and filter material(24) and to said optical imaging element(4, see figure 2, paragraph 0041).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. in view of Melman et al.(US 6,564,018).

Consider claim 2, and as applied to claim 1 above, Yamada et al. further teach that the optically transmissive substrate(24) includes filter material(paragraph 0041). However, Yamada et al. do not explicitly teach the structure of said filter material.

Melman et al. is similar to Yamada et al. in that Melman et al. teach an optical sensor circuit assembly(figures 1-9b), comprising an optically transmissive

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substrate("cover glass", 806, figures 8a-8c, column 6, line 49), and an optical imaging element("sensor", 116, column 6, line 52, figure 8c) coupled to said substrate(sensor(116) is coupled to filter material(820) with glue layer(800), see figure 8c). Melman et al. also similarly teach that the optically transmissive substrate includes filter material(cover glass(106) has an antireflective coating(816) and an optical IR blocking coating(820), see figure 8C, column 6, line 57 through column 7, line 6).

However, in addition to the teachings of Yamada et al., Melman et al. teach that said filter material is embedded in said substrate("deposited on internal surface(818, i.e. embedded) of glass cover(806, i.e. said substrate)", column 7, lines 3-5).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the filter material taught by Yamada et al. comprise embedded filter material as taught by Melman et al. for the benefit of preventing excess ghosting and scattered light as is caused by internal reflections of optically transmissive substrates, reducing the number of pieces of the optical sensor circuit assembly, preventing damage to the filter material due to the cleaning of the separate lens module, and correcting color and/or contrast distortion(Melman et al., column 2, lines 1-24, column 6, line 44 through column 7, line 2).

Consider claim 3, and as applied to claim 1 above, Yamada et al. further teach that the optically transmissive substrate(24) includes filter material(paragraph 0041). However, Yamada et al. do not explicitly teach the structure of said filter material.

Melman et al. is similar to Yamada et al. in that Melman et al. teach an optical sensor circuit assembly(figures 1-9b), comprising an optically transmissive substrate("cover glass", 806, figures 8a-8c, column 6, line 49), and an optical imaging element("sensor", 116, column 6, line 52, figure 8c) coupled to said substrate(sensor(116) is coupled to filter material(820) with glue layer(800), see figure 8c). Melman et al. also similarly teach that the optically transmissive substrate includes filter material(cover glass(106) has an antireflective coating(816) and an optical IR blocking coating(820), see figure 8C, column 6, line 57 through column 7, line 6).

However, in addition to the teachings of Yamada et al., Melman et al. teach that said filter material is dispersed in said substrate("Instead of using the IR coating an IR absorbing glass may be used(i.e. the IR material is dispersed in the substrate)", column 7, lines 13-14).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the filter material taught by Yamada et al. comprise dispersed filter material as taught by Melman et al. for the benefit of preventing excess ghosting and scattered light as is caused by internal reflections of optically transmissive substrates, reducing the number of pieces of the optical sensor circuit assembly, preventing damage to the filter material due to the cleaning of the separate lens module, and correcting color and/or contrast distortion(Melman et al., column 2, lines 1-24, column 6, line 44 through column 7, line 2).



Consider claim 4, and as applied to claim 1 above, Yamada et al. further teach that the optically transmissive substrate(24) includes filter material(paragraph 0041). However, Yamada et al. do not explicitly teach the structure of said filter material.

Melman et al. is similar to Yamada et al. in that Melman et al. teach an optical sensor circuit assembly(figures 1-9b), comprising an optically transmissive substrate("cover glass", 806, figures 8a-8c, column 6, line 49), and an optical imaging element("sensor", 116, column 6, line 52, figure 8c) coupled to said substrate(sensor(116) is coupled to filter material(820) with glue layer(800), see figure 8c). Melman et al. also similarly teach that the optically transmissive substrate includes filter material(cover glass(106) has an antireflective coating(816) and an optical IR blocking coating(820), see figure 8C, column 6, line 57 through column 7, line 6).

However, in addition to the teachings of Yamada et al., Melman et al. teach that said filter material comprises a thin film layer on the substrate(The Anti-reflective portion on the filter material(816) is applied as a coat(i.e. a thin film layer) on the surface of the substrate(806), column 6, lines 57-65).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the filter material taught by Yamada et al. comprise a thin film layer as taught by Melman et al. for the benefit of preventing excess ghosting and scattered light as is caused by internal reflections of optically transmissive substrates, preventing damage to the filter material due to the cleaning of the separate lens module, and correcting color and/or contrast distortion(Melman et al., column 2, lines 1-24, column 6, line 44 through column 7, line 2).

Consider claim 5, and as applied to claim 4 above, Yamada et al. further teach that the optically transmissive substrate(24) includes filter material(paragraph 0041). However, Yamada et al. do not explicitly teach the structure of said filter material.

However, Melman et al. further teach that said thin film layer(816) further comprises material having antireflective properties(column 6, lines 57-65).

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. in view of Melman(US 6,134,393).

Consider claim 10, and as applied to claim 9 above, Yamada et al. further teach a lens mount(3) supporting said at least one optical element(2, see figure 2). However, Yamada et al. do not explicitly teach that the lens mount is coupled to a second surface of said substrate(24).

Melman is are similar to Yamada et al. in that Melman teaches an optical sensor circuit assembly(figure 3), comprising an optically transmissive substrate(106), and an optical imaging element(116) coupled to said substrate(see figure 3).

However, in addition to the teachings of Yamada et al., Melman teaches a lens mount("body", 300, see figure 3, the lens is coupled to the substrate via the body(300)) supporting said at least one optical element("lens", 202, figure 3) and coupled to a second surface(top surface, see figure 3)) of said substrate(Said substrate is labeled

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"106" in figure 3. Lens mount(300) is coupled to substrate(106) via film leads(302 and 304), column 4, lines 55-58.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to couple the lens mount taught by Yamada et al. to a second surface of the substrate as taught by Melman, for the benefit of ensuring the correct positioning of the imaging device along its optical axis.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

  
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SUPERVISORY PATENT EXAMINER